AMENDMENTS TO THE CLAIMS:

Below is a listing of all claims presently in the application, wherein Claims 1, 7, 12, and 22 are amended as shown and Claims 6 and 16-18 are canceled:

1. (currently amended) A point source module comprising:

(a) a Shack cube comprising a beam splitter cube having four optically functional faces, with an optical element having a spherical reference surface secured to one of said four faces and defining a reference arm;

(b) a test arm that is associated with transmission of optical radiation from a source to a sample and through one of the following:

(i) said reference surface, or

(ii) a face of said beam splitter cube adjacent said reference surface and on the opposite side of the beam splitting surface from said reference surface;

(c) a phase shifter situated between said beam splitter cube and said sample;

(d) a point source of optical radiation whose emissions are incident on a face of said beam splitter cube such that light from said source traverses both said reference arm and said test arm; and

~~(d)~~ (e) a detector associated with a face of said beam splitter cube adjacent said source and on the opposite side of the beam splitting surface from said source comprising a detector arm, an objective lens associated with said test arm, or both.

2. (original) The point source module of Claim 1 wherein said optical element comprises a plano-convex lens, said convex portion of said lens comprising said spherical reference surface.

3. (original) The point source module of Claim 2 wherein said plano-convex lens comprises a partially light absorbing material.

4. (original) The point source module of Claim 2 wherein said spherical reference surface has a reflective coating.

5. (original) The point source module of Claim 1 further including a moveable lens for an interference mode of operation, said moveable lens situated between said beam splitter cube and said detector.

6. (canceled)

7. (currently amended) The point source module of Claim [[6]] 1 wherein said phase shifter comprises two prisms.

8. (original) The point source module of Claim 7 wherein said two prisms are arranged such that an optical axis of said objective lens is not substantially displaced laterally from an optical axis of said spherical reference surface, and phase shifting is achieved by lateral translation of one prism relative to the other prism.

9. (original) The point source module of Claim 8 wherein at least one surface of at least one prism is provided with an antireflection coating to permit use of prisms having a surface normal to incident optical radiation.

10. (original) The point source module of Claim 8 wherein said two prisms are spaced apart by a minimum distance so as to minimize displacement of said optical axes.

11. (original) The point source module of Claim 7 further including (1) a mechanism for rotating said phase shifting prisms so that no planar surface is normal to incident optical radiation and (2) a mechanism to offset said objective lens axis to match an offset introduced by rotating said prism.

12. (currently amended) The point source module of Claim [[6]] 1 further including a collimating lens between said beam splitter cube and said phase shifter.

13. (original) The point source module of Claim 1 further including astigmatism in said objective lens so that an image from a test sample formed on said detector is indicative of direction of focus shift.

14. (original) The point source module of Claim 1 wherein said detector is selected from the group consisting of a human eye associated with an eyepiece or an electronic camera with or without additional associated optics.

15. (original) The point source module of Claim 1 wherein a filter is placed between said beam splitter cube and said spherical reference surface.

Claims 16-18 (canceled)

19. (original) The point source module of Claim 1 further including either a collimating auxiliary lens to produce a collimated output of optical radiation or an auxiliary lens as part of said objective lens in said test arm to change the working distance, numerical aperture, or both of said point source microscope.

20. (original) A method of aligning a point source module, said point source module comprising:

(a) a Shack cube comprising a beam splitter cube having four optically functional faces, with an optical element having a spherical reference surface secured to one of said four faces and defining a reference arm;

(b) a test arm that is associated with transmission of optical radiation from a source to a sample and through one of the following:

(i) said reference surface, or

(ii) a face of said beam splitter cube adjacent said reference surface and on the opposite side of the beam splitting surface from said reference surface;

(c) a point source of optical radiation whose emissions are incident on a face of said beam splitter cube such that light from said source traverses both said reference arm and said test arm; and

(d) a detector associated with a face of said beam splitter cube adjacent said source and on the opposite side of said beam splitting surface from said source comprising a detector arm, an objective lens associated with said test arm, or both, said method comprising

combining a cat's eye-type reflection with said objective lens so that images from said spherical reference surface and from said objective lens are coincident or separated, as desired.

21. (original) The method of Claim 20 wherein a focus-adjustable collimating lens is situated between said beam splitter cube and said objective lens to permit adjustment during assembly of said point source module.

22. (currently amended) A method of using a point source microscope, said point source microscope comprising:

(a) a Shack cube comprising a beam splitter cube having four optically functional faces, with an optical element having a spherical reference surface secured to one of said four faces and defining a reference arm;

(b) a test arm comprising an objective lens that is associated with transmission of optical radiation from a source to a sample and through one of the following:

(i) said reference surface, or

(ii) a face of said beam splitter cube adjacent said reference surface and on the opposite side of said beam splitting surface from said reference surface;

(c) a point source of optical radiation whose emissions are incident on a face of said beam splitter cube such that light from said source traverses both said reference arm and said test arm; and

(d) a detector associated with the face of said beam splitter cube adjacent said source and on the opposite side of said beam splitting surface from said source so as to receive optical radiation that has reflected from both said spherical reference surface and from said sample after passing through said objective lens, said method comprising <u>combining a cat's eye-type reflection with said objective lens so that images from said spherical reference surface and from said objective lens are coincident or separated, as desired, and</u> obtaining information relating to optical datums, mechanical datums, or both.

23. (original) The method of Claim 22 wherein said method comprises simultaneously obtaining three-dimensional coordinate information relating to said optical datums, said mechanical datums, or both.

24. (original) The method of Claim 22 further comprising attaching said point source microscope as a sensor to a measuring apparatus for measuring the relative locations of optical datums, mechanical datums, or both.

25. (original) The method of Claim 24 wherein said point source microscope is attached to said measuring apparatus for measuring the relative locations of said optical datums, said mechanical datums, or both in three spatial coordinate dimensions simultaneously.

26. (original) The method of Claim 24 further comprising computer control of said measuring apparatus to automatically measure a surface of said sample.

27. (original) The method of Claim 24 further comprising (1) placing in a hole either a ball or a ball mounted on a stud and (2) measuring location of said ball to determine location of said hole.

28. (original) The method of Claim 24 further comprising placing a pin in a hole, and measuring location or tilt or both of said pin to determine to determine location or orientation or both of said hole.

29. (original) The method of Claim 24 further comprising placing a cylindrical pin on a part surface to permit measuring height or tilt or both of a part surface when said point source microscope is not normal to said part surface.

30. (original) The method of Claim 24 further comprising setting said point source microscope to a prescribed location and using real time visual or video sensor feedback to adjust position or alignment of a part until satisfactory.

31. (original) The method of Claim 24 further comprising a video marker on a video monitor that receives a signal from said detector to indicate a tolerance zone of acceptable alignment.

32. (original) The method of Claim 24 further comprising attaching said point source microscope to a coordinate measuring apparatus having a probe tip having a radius and specifying said probe tip radius as effectively zero.

33. (original) The method of Claim 24 wherein said sample has one or more aspheric surfaces.

34. (original) The method of Claim 33 further comprising masking said at least one aspheric surface to obtain an image that uses a portion of said surface with sufficiently small variation of radius of curvature.

35. (original) The method of Claim 24 wherein said point source microscope is used to measure quality of an optical component.

36. (original) The method of Claim 24 wherein said point source microscope is used in interference mode to increase precision in locating said optical datum or said mechanical datum or both, wherein said interference mode is created by (a) employing as said point source a coherent source of optical radiation and (b) moving a movable lens into the optical path between said detector and said beam splitter cube.

37. (original) The method of Claim 24 further comprising capturing an image from said detector in a computer for quantitative analysis of said image.

38. (original) The method of Claim 37 further comprising determination of distance of said point source microscope focus from an optimal focus.

39. (original) The method of Claim 24 further comprising using phase shifting methods in interference mode to further improve precision with which said optical datums or said mechanical datums or optical performance measurements are determined.

40. (original) The method of Claim 24 further comprising using said point source microscope in at least one of assembly, alignment, and inspection of an optical surface, an optical component, or an optical system in conjunction with said measuring apparatus.

41. (original) The method of Claim 24 further comprising using said point source microscope as a sensor in a profilometer to measure surface shape of said sample.

42. (original) The method of Claim 22 further comprising attaching either a collimating auxiliary lens to produce a collimated output of optical radiation or an auxiliary lens as part of said objective lens in said test arm to change the working distance, numerical aperture, or both of said point source microscope.

43. (original) The method of Claim 42 wherein said collimated output of optical radiation permits measurement of angular alignment of said sample.

44. (original) The method of Claim 22 further comprising using a variable intensity light source so as to permit an operator to see directly optical radiation incident that is on said sample to simplify alignment to said sample and once the return image is found, to reduce the amount of said optical radiation so that a camera detector is not saturated.